



CRITICAL AND HAZARDOUS MATERIALS LIST

Please fill out the following list as per instructions on the reverse, return to the Department of Buildings, and retain a copy at your place of business. Feel free to make copies, attach additional pages, and/or add explanatory notes, if appropriate.

Company Name: Spokane County Property Address: 22515 N. Elk-Chattaroy Road
Colbert, WA

PRODUCT 1

Product and/or Chemical Name:	Scale Control Polymer
Maximum Quantity (Gals, Lbs, Cu.Ft.):	Up to 1,325 gal
Material Classification (UBC Table 9-A, 9-B):	No hazard rating
MSDS Sheet etc.:	Data Sheet No. 1, attached and No. 1a
Area Stored and/or Used:	Stored indoors, used indoors, continuous use
Proposed Method of Storage:	Polyethylene tank (aboveground)

PRODUCT 2

Product and/or Chemical Name:	Defoamer
Maximum Quantity (Gals, Lbs, Cu.Ft.):	Up to 55 gal
Material Classification (UBC Table 9-A, 9-B):	Sensitizer
MSDS Sheet etc.:	Data Sheet No. 2, attached
Area Stored and/or Used:	Used indoors, no ongoing use or storage
Proposed Method of Storage:	Maximum of two 55 gal drums

PRODUCT 3

Product and/or Chemical Name:	Hydrochloric Acid
Maximum Quantity (Gas, Lbs, Cu. Ft.):	Up to 1,800 gal of 35%, up to 7,000 gal of 10%
Material Classification (UBC Table 9-A, 9-B):	Corrosive, toxic, Class 1 Unstable
MSDS Sheet etc.:	Data Sheet No. 3, attached
Area Stored and/or Used:	Stored outdoors, used outdoors, except circulates in indoor process piping, no ongoing use or storage
Proposed Method of Storage:	FRP tank (aboveground), or eight 55-gal drums, or tanker truck.

PRODUCT 4

Product and/or Chemical Name:	Sodium Hydroxide
Maximum Quantity (Gals, Lbs, Cu.Ft.):	Up to 220 gal of 50%
Material Classification (UBC Table 9-A, 9-B):	Corrosive, toxic, Class 1 Unstable
MSDS Sheet etc.:	Data Sheet No. 4, attached
Area Stored and/or Used:	Used indoors, no ongoing use or storage
Proposed Method of Storage:	Maximum of four 55-gal drums.

PRODUCT 5

Product and/or Chemical Name:	Hydrogen peroxide
Maximum Quantity (Gals, Lbs, Cu.Ft.):	Up to 220 gal of 35%
Material Classification (UBC Table 9-A, 9-B):	Irritant, corrosive, Class 2 Oxidizer
MSDS Sheet etc.:	Data Sheet No. 5, attached
Area Stored and/or Used:	Used indoors, no ongoing use or storage
Proposed Method of Storage:	Maximum of four 55-gal drums.

The above is a true and correct accounting of the chemicals intended to be used and/or stored at the referenced facilities.

Signed by: Michael A. Staszak
Owner or Authorized Representative
Michael A. Staszak
Landau Associates, Inc.

Date: 9/9/93

NALCO

DATA SHEET NO. 1

MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 8357 SCALE INHIBITOR

Emergency Telephone Number

Medical (708) 920-1510 (24 hours)

SECTION 1 PRODUCT IDENTIFICATION

TRADE NAME: NALCO 8357 SCALE INHIBITOR

DESCRIPTION: An aqueous solution of a polyacrylate

NFPA 704M/HMIS RATING: 1/1 HEALTH 1/1 FLAMMABILITY 0/0 REACTIVITY 0 OTHER
0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

SECTION 2 HAZARDOUS INGREDIENTS

Our hazard evaluation of the ingredient(s) under OSHA's Hazard Communication Rule, 29 CFR 1910.1200 has found none of the ingredient(s) hazardous.

SECTION 3 PRECAUTIONARY LABEL INFORMATION

CAUTION: May cause irritation to skin and eyes. Avoid contact with skin, eyes and clothing. Do not take internally.

Empty containers may contain residual product. Do not reuse container unless properly reconditioned.

SECTION 4 FIRST AID INFORMATION

EYES: Flush with water for 15 minutes. Call a physician.
SKIN: Flush with water for 15 minutes.
INGESTION: Do not induce vomiting. Give water. Call a physician.
INHALATION: Remove to fresh air. Treat symptoms. Call a physician.

NOTE TO PHYSICIAN: No specific antidote is known. Based on the individual reactions of the patient, the physician's judgment should be used to control symptoms and clinical condition.

CAUTION: If unconscious, having trouble breathing or in convulsions, do not induce vomiting or give water.

SECTION 5 HEALTH EFFECTS INFORMATION

PRIMARY ROUTE(S) OF EXPOSURE: Eye, Skin

EYE CONTACT: May cause irritation with prolonged contact.

SKIN CONTACT: May cause irritation with prolonged contact.

SYMPTOMS OF EXPOSURE: A review of available data does not identify any symptoms from exposure not previously mentioned.

AGGRAVATION OF EXISTING CONDITIONS: A review of available data does



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 8357 SCALE INHIBITOR

Emergency Telephone Number

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SECTION 5 HEALTH EFFECTS INFORMATION

(CONTINUED)

not identify any worsening of existing conditions.

SECTION 6 TOXICOLOGY INFORMATION

ACUTE TOXICITY STUDIES: Acute toxicity studies have been conducted on this product. The results are shown below.

ACUTE ORAL TOXICITY (ALBINO RATS): LD50 = Greater than 5,000 mg/kg

ACUTE DERMAL TOXICITY (ALBINO RABBITS): LD50 = Greater than 2,000 mg/kg

PRIMARY SKIN IRRITATION TEST (ALBINO RABBITS):

SKIN IRRITATION INDEX DRAIZE RATING: 0.0/8.0 Non-irritating

PRIMARY EYE IRRITATION TEST (ALBINO RABBITS):

EYE IRRITATION INDEX DRAIZE RATING: 2.7/110.0 Minimally irritating

SECTION 7 PHYSICAL AND CHEMICAL PROPERTIES

COLOR:	Clear water-white	FORM:	Liquid	ODOR:	Organic
DENSITY:	10.2 lbs/gal.				
SOLUBILITY IN WATER:	Completely				
SPECIFIC GRAVITY:	1.21 - 1.23 @ 60 Degrees F			ASTM D-1298	
pH (NEAT) =	3.6 - 4.0			ASTM E-70	
VISCOSITY:	51 cps @ 60 Degrees F			ASTM D-2983	
FREEZE POINT:	20 Degrees F			ASTM D-1177	
FLASH POINT:	None (PMCC)			ASTM D-93	

NOTE: These physical properties are typical values for this product.

SECTION 8 FIRE AND EXPLOSION INFORMATION

FLASH POINT: None (PMCC) ASTM D-93

EXTINGUISHING MEDIA: This product would not be expected to burn unless all the water is boiled away. The remaining organics may be ignitable. Use water to cool containers exposed to fire.

UNUSUAL FIRE AND EXPLOSION HAZARD: May evolve NOx under fire conditions. Containers exposed in a fire should be cooled with water to prevent vapor pressure buildup leading to a rupture.



MATERIAL SAFETY DATA SHEET

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SECTION 9 REACTIVITY INFORMATION

INCOMPATIBILITY: Avoid contact with strong oxidizers (eg. chlorine, peroxides, chromates, nitric acid, perchlorates, concentrated oxygen, permanganates) which can generate heat, fires, explosions and the release of toxic fumes.

THERMAL DECOMPOSITION PRODUCTS: In the event of combustion CO, CO₂, NO_x may be formed. Do not breathe smoke or fumes. Wear suitable protective equipment.

SECTION 10 PERSONAL PROTECTION EQUIPMENT

RESPIRATORY PROTECTION: Respiratory protection is not normally needed since the volatility and toxicity are low. If significant vapors, mists or aerosols are generated, wear a NIOSH approved or equivalent respirator.

For large spills, entry into large tanks, vessels or enclosed small spaces with inadequate ventilation, a pressure-demand, self-contained breathing apparatus is recommended.

VENTILATION: General ventilation is recommended.

PROTECTIVE EQUIPMENT: Use impermeable gloves and chemical splash goggles when attaching feeding equipment or doing maintenance.

The availability of an eye wash fountain and safety shower is recommended.

If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse.

SECTION 11 SPILL AND DISPOSAL INFORMATION

IN CASE OF TRANSPORTATION ACCIDENTS, CALL THE FOLLOWING 24-HOUR TELEPHONE NUMBER (708-920-1510)

SPILL CONTROL AND RECOVERY:

Small liquid spills: Contain with absorbent material, such as clay, soil or any commercially available absorbent. Shovel reclaimed liquid and absorbent into recovery or salvage drums for disposal. Refer to CERCLA in Section 14.

Large liquid spills: Dike to prevent further movement and reclaim into recovery or salvage drums or tank truck for disposal. Refer to CERCLA in Section 14.

DISPOSAL: If this product becomes a waste, it does not meet the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C,



MATERIAL SAFETY DATA SHEET

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SECTION 11 SPILL AND DISPOSAL INFORMATION

(CONTINUED)

nor is it listed under Subpart D.

As a non-hazardous liquid waste, it should be solidified with stabilizing agents (such as sand, fly ash, or cement) so that no free liquid remains before disposal to an industrial waste landfill. A non-hazardous liquid waste can also be incinerated in accordance with local, state and federal regulations.

SECTION 12 ENVIRONMENTAL INFORMATION

AQUATIC DATA:

96 hour static acute LC50 to Bluegill Sunfish = Greater than 1,000 ppm

96 hour no observed effect concentration is 1,000 ppm based on no mortality or abnormal effects.

96 hour static acute LC50 to Rainbow Trout = Greater than 1,000 ppm

96 hour no observed effect concentration is 1,000 ppm based on no mortality or abnormal effects.

48 hour static acute LC50 to Daphnia Magna = Greater than 1,000 ppm

48 hour no observed effect concentration is 560 ppm based on no mortality or abnormal effects.

TOXICITY RATING: Essentially non-toxic

96 hour static acute LC50 to Mysid Shrimp = 464 mg/L

TOXICITY RATING: Slightly toxic

96 hour static acute LC50 to Silversides (Menidia beryllina) = Greater than 1,000 mg/L

TOXICITY RATING: Essentially non-toxic

If released into the environment, see CERCLA in Section 14.



MATERIAL SAFETY DATA SHEET

PRODUCT

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Emergency Telephone Number

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SECTION 13 TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME/HAZARD CODE - PRODUCT IS NOT REGULATED
DURING TRANSPORTATION

SECTION 14 REGULATORY INFORMATION

The following regulations apply to this product.

FEDERAL REGULATIONS:

OSHA'S HAZARD COMMUNICATION RULE, 29 CFR 1910.1200:

Based on our hazard evaluation, none of the ingredients in this product are hazardous.

CERCLA, 40 CFR 117, 302:

Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986

(TITLE III) - SECTIONS 302, 311, 312 AND 313:

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355):

This product does not contain ingredients listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 and 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370):

Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372):

This product does not contain ingredients on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA):

The chemical ingredients in this product are on the 8(b) Inventory List (40 CFR 710).

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), 40 CFR 261 SUBPART C & D:

Consult Section 11 for RCRA classification.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15

(formerly Sec. 307), 40 CFR 116 (formerly Sec. 311):

None of the ingredients are specifically listed.

CLEAN AIR ACT, 40 CFR 60, SECTION 111, 40 CFR 61, SECTION 112:

This product does not contain ingredients covered by the Clean Air Act.



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 8357 SCALE INHIBITOR

Emergency Telephone Number

Medical (708) 920-1510 (24 hours)

SECTION 14 REGULATORY INFORMATION

(CONTINUED)

STATE REGULATIONS:

CALIFORNIA PROPOSITION 65:

This product does not contain any chemicals which require warning under California Proposition 65.

MICHIGAN CRITICAL MATERIALS:

This product does not contain ingredients listed on the Michigan Critical Materials Register.

STATE RIGHT TO KNOW LAWS:

The following ingredient(s) are disclosed for compliance with State Right To Know Laws:

Acrylate polymer	Trade secret
Inorganic salts	Trade secrets
Water	7732-18-5

INTERNATIONAL REGULATIONS:

This is not a WHMIS controlled product under The House of Commons of Canada Bill C-70.

SECTION 15 ADDITIONAL INFORMATION

None

SECTION 16 USER'S RESPONSIBILITY

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to ensure safe workplace operations. Please consult your local sales representative for any further information.

SECTION 17 BIBLIOGRAPHY

ANNUAL REPORT ON CARCINOGENS, U.S. Department of Health and Human Services, Public Health Service, PB 33-135855, 1983.

CASARETT AND DOULL'S TOXICOLOGY, THE BASIC SCIENCE OF POISONS, Doull, J.,



MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 8357 SCALE INHIBITOR

Emergency Telephone Number

Medical (708) 920-1510 (24 hours)

SECTION 17 BIBLIOGRAPHY

(CONTINUED)

Klaassen, C. D., and Admur, M. O., eds., Macmillian Publishing Company, Inc., N. Y., 2nd edition, 1980.

CHEMICAL HAZARDS OF THE WORKPLACE, Proctor, N. H., and Hughes, J. P., eds., J. P. Lipincott Company, N.Y., 1981.

DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS, Sax, N. Irving, ed., Van Nostrand Reinhold Company, N.Y., 6th edition, 1984.

IARC MONOGRAPHS ON THE EVALUATION OF THE CARCINOGENIC RISK OF CHEMICALS TO MAN, Geneva: World Health Organization, International Agency for Research on Cancer, 1972-1977.

PATTY'S INDUSTRIAL HYGIENE AND TOXICOLOGY, Clayton, G. D., Clayton, F. E., eds., John Wiley and Sons, N. Y., 3rd edition, Vol. 2 A-C, 1981.

REGISTRY OF TOXIC EFFECTS ON CHEMICAL SUBSTANCES, U.S. Department of Health and Human Services, Public Health Service, Center for Disease Control, National Institute for Occupational Safety and Health, 1983 supplement of 1981-1982 edition, Vol. 1-3, OH, 1984.

Title 29 Code of Federal Regulations Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA).

THRESHOLD LIMIT VALUES FOR CHEMICAL SUBSTANCES AND PHYSICAL AGENTS IN THE WORKROOM ENVIRONMENT WITH INTENDED CHANGES, American Conference of Governmental Industrial Hygienists, OH.

PREPARED BY: Ricky A. Stackhouse PhD., Toxicologist

DATE CHANGED: 09/26/91

DATE PRINTED: 10/04/91

RECEIVED

DEC 12 1996

ALLIED COLLOIDS INC

2301 WILROY ROAD, P.O. BOX 820
SUFFOLK, VA 23439-0820
(804) 538-370024-HOUR EMERGENCY CONTACT
CHEMTREC: 800/424-9300Data Sheet No. 1a
Page 1 of 3

LANDAU ASSOCIATES, INC.

SECTION I - IDENTIFICATION

PRODUCT:

DP6-2696

ISSUE/REV DATE
9-Nov-92

CHEMICAL FAMILY: Acrylic polymer in an aqueous solution.

DESCRIPTION: Clear to pale yellow liquid. Odorless,
or with a slight mild odor.

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS No.	LIMIT(S) IN AIR		REMARKS
		PPM	mg/m ³	
This product is not hazardous as defined in 29CFR1910.1200				

SECTION III - PHYSICAL PROPERTIES

BOILING POINT: 90-100 C

SPECIFIC GRAVITY: 1.0-1.4

VAPOR DENSITY (air=1): ND

pH: 6-8

VOLATILES (% by volume): ND

VAPOR PRESSURE (mmHg): AS WATER

EVAPORATION RATE (ether=1): < 1

SOLUBILITY Soluble.
IN WATER:

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

EXTINGUISHING MEDIA

NA (will not burn). Use media
appropriate for type of fire
and combustibles in area.

FLASH POINT: NONE

LEL: NA

UEL: NA

SPECIAL FIRE FIGHTING PROCEDURES

Firefighters should wear normal protective equipment. SCBA
is recommended for confined areas. Cool exposed drums or
tanks with water.

UNUSUAL FIRE AND EXPLOSION HAZARDS

NA (No known unusual fire and explosion hazards.)

SECTION V - REACTIVITY DATA

STABILITY

STABLE

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

INCOMPATIBILITY Strong oxidants.

HMS RATING (NFPA)

H 0

F 0

R 0

P *

PERSONAL PROTECTION AS
BY OSHA, DEPENDENT ON

DEGREE OF HAZAR

4 = SEVERE

3 = SERIOUS

2 = MODERATE

1 = SLIGHT

0 = MINIMAL

Material Safety Data Sheet

SECTION VI - HEALTH HAZARD DATA

NATURE OF PRINCIPAL HAZARD(S): NA (not a health hazard as defined by OSHA)

TARGET ORGAN(S): NA

SIGNS, SYMPTOMS, AND EFFECTS OF EXPOSURE:

Eye contact may produce slight irritation and/or redness.

CARCINOGENICITY:

Not listed as a carcinogen by IARC, NTP, OSHA or ACGIH

EXPOSURE LIMITS: None established

SAFETY PRECAUTIONS:

Do not get in eyes, on skin, on clothing.

Wash thoroughly after handling.

Avoid prolonged or repeated skin contact.

FIRST AID:

EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Call a physician if irritation continues.

INGESTION: Give large quantities of water and call a physician. Never give anything by mouth to an unconscious person.

SKIN CONTACT: Remove contaminated clothing and launder before reuse. Wash effected area with soap and water.

INHALATION: Remove to fresh air.

SECTION VII - ENVIRONMENTAL DATA

SPILL OR LEAK PROCEDURES

Remove all ignition sources. Dike area to control runoff, and collect spill in appropriate container(s). Use an inert absorbant such as vermiculite to collect residual liquid. Then water wash area to waste treatment to eliminate slip hazard.

WASTE DISPOSAL METHOD

Disposal must be arranged in accordance with local, state and federal regulations. This material, when unadulterated, is not a RCRA regulated hazardous waste. However, local disposal regulations will often apply. Care must be taken to prevent environmental contamination from the disposal of material, residues and containers.

SECTION VIII - PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: Use NIOSH approved respirator for organic vapor and/or mist, as required to control exposure.

PROTECTIVE GLOVES: Chemical resistant gloves.

EYE PROTECTION: Full sideshield safety glasses or goggles (ANSI Z87.1 standard).

VENTILATION: Recommended general ventilation rate of, as a minimum, 10 air changes per hour.

OTHER EQUIPMENT: Provide eyewash station(s). Select additional protective equipment (eg apron, face shield, etc.), depending on conditions of use.

PRODUCT: **DP6-2696**

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SECTION IX - REGULATORY INFORMATION

SHIPPING INFORMATION

PROPER SHIPPING NAME: NOT A DOT/IMO HAZARDOUS MATERIAL

ID NUMBER: NA

RQ: NA

DOT EMERGENCY GUIDE (ERG) #: 31

HAZARD CLASS or DIVISION: NA

PACKING GROUP: -

TSCA COMPONENTS APPEAR ON THE TSCA INVENTORY

SARA PRODUCT HAZARD CATEGORIES (Sec 311): PRODUCT NOT SUBJECT TO REPORTING

The following components are defined as toxic chemicals subject to reporting requirements of SARA Section 313 and of 40 CFR 372:

No components are 313 Toxic Chemicals

STATE LABELLING INFORMATION

NJ RTK LABEL - COMPONENTS INCLUDE:

WATER
SODIUM POLYACRYLATE

CAS or ID #:

7732-18-5
113184-25-1

CA PROP 65: NOT KNOWN TO CONTAIN A REGULATED ITEM

SECTION X - ADDITIONAL INFORMATION

NA=Not Applicable; ND=Not Determined or No Data

Avoid high temperatures and open systems to minimize vapor release and exposures.

Keep containers closed and properly labelled.
Do not reuse containers before contents are completely removed, and the container is properly cleaned and reconditioned. (Refer also to Section VII)

Good personal hygiene practices can reduce potential exposure. Wash with soap and water following any contact with this product, as well as before breaks and meals. Shower and change clothing at end of work shift. If clothing becomes contaminated, remove and launder or dry-clean before reuse.

The information and recommendations contained herein are, to the best of Allied Colloids Inc's knowledge and belief, accurate and reliable as of the last revision date. This document is offered in good faith. The information relates to the specific material designated, and may not be valid for such material used in combination with any other materials, in any process, or if used in a manner other than for which it is intended.

Allied Colloids Inc does not warrant or guarantee accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information, nor do we offer warranty against patent infringement.

Allied Colloids Inc



Material Safety Data Sheet

DATA SHEET NO. 2

KJR

LANDAU ASSOCIATES
23107 100TH AVE. W.
EDMONDS, WA 98020
KEN REIMER

DOW CORNING CORPORATION
MATERIAL SAFETY DATA SHEET

MATL NAME: DOW CORNING(R) ANTIFOAM 1520-US
EMERGENCY TELEPHONE NO. (517) 496-5900

SECTION I - GENERAL INFORMATION

MANUFACTURER'S NAME: DOW CORNING CORP. PRODUCT INFORMATION NO. (517) 496-6000
ADDRESS: SOUTH SAGINAW ROAD, MIDLAND MI 48686

PROPER SHIPPING NAME(49CFR 172.101): NONE
D.O.T. HAZARD NAME(49CFR 172.101): NONE
D.O.T. ID NO(49CFR 172.101): NONE
D.O.T. HAZARD CLASS(49CFR 172.101): NONE
RCRA HAZARD CLASS(40CFR 261)(IF DISCARDED): NONE
E.P.A. PRIORITY POLLUTANTS(40CFR 122.53): NONE
NFPA - NATIONAL FIRE PROTECTION ASSOCIATION - 704
HEALTH (NFPA): 1 FLAMMABILITY (NFPA): 1 REACTIVITY (NFPA): 0
CAS NO: MIXTURE DOW CORNING WARNING CODE: NOT
GENERIC DESCRIPTION: SILICONE EMULSION USED

SECTION II - HAZARDOUS INGREDIENTS AS DEFINED IN 29 CFR 1910.1200
(CARCINOGENS IDENTIFIED WITH AN ASTERISK *)

CAS NO.	INGREDIENT	WT. %	EXPOSURE LIMITS
007631869	SILICA, AMORPHOUS	1	OSHA PEL: TWA 6 MG/M3, ACGIH TLV: TWA 10 MG/M3 TOTAL DUST
031566311	GLYCERYL MONOSTEARATE	1	ACGIH TLV, STEARATES: TWA 10 MG/M3 TOTAL DUST.
009004675	METHYL CELLULOSE	2	SUPPLIER GUIDE: TWA 10 MG/M3.
009005714	SORBITAN (EO GYLCO), - TRISTEARATE	2	ACGIH TLV, STEARATES: TWA 10 MG/M3 TOTAL DUST.

SECTION III - EFFECTS OF OVEREXPOSURE

EYE: DIRECT CONTACT MAY CAUSE TEMPORARY DISCOMFORT WITH MILD REDNESS AND
DRYNESS SIMILAR TO WINDBURN.

SKIN: A SINGLE PROLONGED EXPOSURE (24 TO 48 HOURS) CAUSES NO KNOWN ADVERSE
EFFECT.

INHALATION: NO IRRITATION TO EYES AND RESPIRATORY PASSAGES. NO INJURY IS LIKELY

DOW CORNING CORPORATION
MATERIAL SAFETY DATA SHEET

MATL NAME: DOW CORNING(R) ANTIFOAM 1520-US

SECTION III - EFFECTS OF EXPOSURE (CONTINUED)

FROM RELATIVELY SHORT EXPOSURE OF LESS THAN 8 HOURS.

ORAL: SMALL AMOUNTS TRANSFERRED TO THE MOUTH BY FINGERS DURING USE, ETC.,
SHOULD NOT INJURE. SWALLOWING LARGE AMOUNTS MAY CAUSE DIGESTIVE DISCOMFORT.

COMMENTS: NO KNOWN ADVERSE CHRONIC HEALTH EFFECTS, BUT UNNECESSARY EXPOSURE TO
ANY CHEMICAL SHOULD BE AVOIDED.
THIS PRODUCT, AS WITH ANY CHEMICAL, MAY ENHANCE ALLERGIC CONDITIONS ON CERTAIN
PEOPLE. WE DO NOT KNOW OF ANY MEDICAL CONDITIONS THAT MIGHT BE AGGRAVATED BY
EXPOSURE TO THIS PRODUCT.
NO INJURY FROM DUSTS SHOULD OCCUR DURING REASONABLE USE. IF USE CREATES
RESPIRABLE PARTICLES SOME RESPIRATORY SYSTEM INJURY MAY OCCUR.

SECTION IV - EMERGENCY AND FIRST AID PROCEDURES

EYES: FLUSH IMMEDIATELY WITH WATER.

SKIN: WIPE OFF AND FLUSH WITH WATER.

INHALATION: NO FIRST AID SHOULD BE NEEDED.

ORAL: NO FIRST AID SHOULD BE NEEDED.

COMMENT: NONE.

SECTION V - FIRE AND EXPLOSION DATA

FLASH POINT (METHOD USED): NONE.

AUTOIGNITION: NOT DETERMINED

FLAMMABILITY LIMITS IN AIR : LOWER:N.A. UPPER: N.A.

EXTINGUISHING MEDIA: WATER WATER FOG X CO2 X DRY CHEMICAL X FOAM X OTHER

SPECIAL FIRE FIGHTING PROCEDURES: SELF-CONTAINED BREATHING APPARATUS AND
PROTECTIVE CLOTHING SHOULD BE WORN IN FIGHTING FIRES INVOLVING CHEMICALS

UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE KNOWN TO DOW CORNING.

COMMENTS: N.A. - NOT APPLICABLE.

SECTION VI - PHYSICAL DATA

BOILING POINT(@ 760 MM HG): APPROX. 212F/100C

SPECIFIC GRAVITY (AT 77 DEG F/25 DEG C): 1.0

MELTING POINT: BELOW 32F/0C (FREEZING POINT)

VAPOR PRESSURE (AT 77 DEG F/25 DEG C): 24 MM (WATER)

VAPOR DENSITY (AIR = 1 AT 77 DEG F/25 DEG C): THAT OF MOIST AIR

PERCENT VOLATILE BY WEIGHT (%): APPROX. 74 (WATER)

EVAPORATION RATE (ETHER = 1): NOT APPLICABLE

SOLUBILITY IN WATER(%): MISCIBLE IN MOST PROPORTIONS

ODOR, APPEARANCE, COLOR: SOME ODOR, LIQUID, WHITE

NOTE: THE ABOVE INFORMATION IS NOT INTENDED FOR USE IN PREPARING PRODUCT
SPECIFICATIONS. CONTACT DOW CORNING BEFORE WRITING SPECIFICATIONS

DOW CORNING CORPORATION
MATERIAL SAFETY DATA SHEET

MATL NAME: DOW CORNING(R) ANTIFOAM 1520-US

SECTION VII - REACTIVITY DATA

STABILITY: STABLE

INCOMPATIBILITY(MATERIAL TO AVOID): OXIDIZING MATERIAL CAN CAUSE A REACTION.

CONDITIONS TO AVOID: NOT APPLICABLE

HAZARDOUS DECOMPOSITION PRODUCTS: SILICON DIOXIDE, CARBON DIOXIDE, AND TRACES OF INCOMPLETELY BURNED CARBON PRODUCTS.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: NOT APPLICABLE

COMMENTS: NONE

SECTION VIII - SPILL, LEAK, MAINTENANCE/REPAIR AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: USE ABSORBENT MATERIAL TO COLLECT AND CONTAIN.

PROTECTIVE EQUIPMENT:

EYES: USE PROPER PROTECTION -- SAFETY GLASSES, AS A MINIMUM.

SKIN: WASHING AT MEALTIME AND END OF SHIFT IS ADEQUATE.

INHALATION: NO RESPIRATORY PROTECTION SHOULD BE NEEDED.

WASTE DISPOSAL METHOD: DOW CORNING SUGGESTS THAT ALL LOCAL, STATE AND FEDERAL REGULATIONS CONCERNING HEALTH AND POLLUTION BE REVIEWED TO DETERMINE APPROVED DISPOSAL PROCEDURES. CONTACT DOW CORNING IF THERE ARE ANY DISPOSAL QUESTIONS.

D.O.T. (49CFR 171.8)/E.P.A. (40CFR 117) SPILL REPORTING INFORMATION

HAZARDOUS SUBSTANCE: NONE REPORTABLE QUANTITY: NOT APPLICABLE
CONCENTRATION OF HAZARDOUS SUBSTANCE: NOT APPLICABLE
REPORTABLE QUANTITY OF PRODUCT: NOT APPLICABLE

COMMENTS: PRODUCT CONTAINS NO INGREDIENT SUBJECT TO D.O.T OR E.P.A. CERCLA/SARA ENVIRONMENTAL RELEASE REPORTING REGULATIONS. SEE SEC. XI FOR ADDITIONAL SARA COMPLIANCE INFORMATION.

SECTION IX - ROUTINE HANDLING PRECAUTIONS

PROTECTIVE EQUIPMENT:

EYES: USE PROPER PROTECTION -- SAFETY GLASSES, AS A MINIMUM.

SKIN *: WASHING AT MEALTIME AND END OF SHIFT IS ADEQUATE.

INHALATION: NO RESPIRATORY PROTECTION SHOULD BE NEEDED.

VENTILATION:

LOCAL EXHAUST: NONE SHOULD BE NEEDED
MECHANICAL (GENERAL): RECOMMENDED

SUITABLE RESPIRATOR: NONE SHOULD BE NEEDED.

THESE PRECAUTIONS ARE FOR ROOM TEMPERATURE HANDLING, USE AT ELEVATED TEMPERATURES, OR AEROSOL/SPRAY APPLICATIONS, MAY REQUIRE ADDED PRECAUTIONS.

* GOOD PRACTICE REQUIRES THAT GROSS AMOUNT OF ANY CHEMICAL BE REMOVED FROM THE SKIN AS SOON AS PRACTICAL, ESPECIALLY BEFORE EATING OR SMOKING.

COMMENTS: NONE

SECTION X - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: KEEP FROM FREEZING. USE REASONABLE CARE AND CAUTION.

OTHER PRECAUTIONS: NONE KNOWN TO DOW CORNING.

COMMENTS: NONE

DOW CORNING CORPORATION
MATERIAL SAFETY DATA SHEET

MATL NAME: DOW CORNING(R) ANTIFOAM 1520-US

SECTION XI - COMMENTS

ADDITIONAL SARA REGULATORY COMPLIANCE INFORMATION

SEC. 312 HAZARD CLASS: NONE.

SEC. 313 NOTIFICATION: NOT APPLICABLE - EITHER NONE PRESENT OR NONE PRESENT
IN REGULATED QUANTITIES.

SECTION XII - COMMENTS

SUPPLEMENTAL STATE COMPLIANCE INFORMATION

PENNSYLVANIA:	1%	7631869	SILICA, AMORPHOUS
		7732185	WATER
		63148629	POLYDIMETHYLSILOXANE
MASSACHUSETTS:	1%	7631869	SILICA, AMORPHOUS
NEW JERSEY:	1%	7631869	SILICA, AMORPHOUS, FUMED: #1655
			PREVAILING COMPONENTS SAME AS PENNSYLVANIA ABOVE PLUS:
		9004675	METHYL CELLULOSE
		9005714	SORBITAN (EO GLYCOL), -TRISTEARATE
		31566311	GLYCERYL MONOSTEARATE

THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS HEREBY MADE. THE RECOMMENDED INDUSTRIAL HYGIENE AND SAFE HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE AND DETERMINE WHETHER THEY ARE APPROPRIATE.

PREPARED BY: JACK L. SHENEGER

LAST REVISION DATE: MARCH 16, 1990

PREVIOUS REVISION DATE: APRIL 8, 1987

DATE: MARCH 02, 1992

(R) INDICATES REGISTERED OR TRADEMARK OF THE DOW CORNING CORPORATION.

OxyChem®

DATA SHEET NO. 3

7785409

P.02

MATERIAL SAFETY DATA SHEET

MSDS NUMBER : M7695

MSDS DATE : 02-01-93

PRODUCT NAME : MURIATIC ACID 20 COMMERCIAL

24 HOUR EMERGENCY PHONE: 1-800-733-3665 OR 716-278-7021

I. PRODUCT IDENTIFICATION**HMIS HAZARD RATINGS**

HEALTH HAZARD 3

FIRE HAZARD 0

REACTIVITY 2

Based on the National Paint & Coatings Association HMIS rating system.

SARA/TITLE III HAZARD CATEGORIES (See Section X)

Immediate (ACUTE) Health: YES

Reactive Hazard: YES

Delayed (Chronic) Health: NO

Sudden Release of Pressure: NO

Fire Hazard: NO

MANUFACTURER'S: Occidental Chemical Corporation
 NAME AND : Customer Service, Occidental Tower, Telephone
 ADDRESS : P O Box 809050, Dallas, Texas 75380 (1-800-752-5151)

CHEMICAL NAME: Hydrochloric Acid CAS NUMBER: 7647-01-0

SYNONYMS/COMMON NAMES: HCl; Aqueous Hydrogen Chloride; Muriatic Acid

CHEMICAL FORMULA: HCl

DOT PROPER SHIPPING NAME: Hydrochloric Acid

DOT HAZARD CLASS: Corrosive Material

DOT I.D. NUMBER: UN1789

DOT HAZARDOUS SUBSTANCE: R05000#

II. HEALTH HAZARD INFORMATION**EMERGENCY AND FIRST AID PROCEDURES****EYES:**

OBJECT IS TO FLUSH MATERIAL OUT IMMEDIATELY THEN SEEK MEDICAL ATTENTION. IMMEDIATELY flush eyes with large amounts of water for at least 15 minutes holding lids apart to ensure flushing of the entire eye surface. Washing eyes within seconds is essential to achieve maximum effectiveness. SEEK MEDICAL ATTENTION IMMEDIATELY.

SKIN:

IMMEDIATELY wash contaminated areas with plenty of soap and water for at least 15 minutes. A soothing ointment may be applied to irritated skin after thorough cleansing. Remove contaminated clothing and footwear and wash clothing before reuse. Discard footwear which cannot be decontaminated. SEEK MEDICAL ATTENTION IMMEDIATELY.

MSDS - Chemical Abstracts Service Number
 PEL - OSHA Permissible Exposure Limit
 TLV - ACGIH Threshold Limit Value, Current
 IMPORTANT: The information presented herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY, OR GUARANTEE, EXPRESS OR IMPLIED, IS MADE REGARDING PERFORMANCE, STABILITY, OR DURABILITY. THIS INFORMATION IS NOT INTENDED TO BE A SUBSTITUTE FOR THE MANUFACTURER'S INSTRUCTIONS, WHILE HANDLING AND STORAGE. OTHER HAZARDOUS MAY EXIST. SEE THE PRODUCT LABEL FOR ADDITIONAL SAFETY AND PERFORMANCE CONSIDERATIONS. WHILE HANDLING AND STORAGE, OTHER HAZARDOUS MAY EXIST. SEE THE PRODUCT LABEL FOR ADDITIONAL SAFETY AND PERFORMANCE CONSIDERATIONS. WHILE HANDLING AND STORAGE, OTHER HAZARDOUS MAY EXIST. SEE THE PRODUCT LABEL FOR ADDITIONAL SAFETY AND PERFORMANCE CONSIDERATIONS.

OCCIDENTAL CHEMICAL
MSDS NUMBER: M7695
PRODUCT NAME: MURIATIC ACID 20 COMMERCIAL

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II. HEALTH HAZARD INFORMATION (Continued)

INHALATION:

Remove to fresh air: If breathing is difficult, have trained person administer oxygen. If respiration stops, give mouth-to-mouth resuscitation. GET MEDICAL ATTENTION.

INGESTION:

NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. If available, give several glasses of milk. Keep airway clear. SEEK MEDICAL ATTENTION IMMEDIATELY.

ROUTES OF EXPOSURE

INHALATION:

Inhalation of gas, mist, fog, or spray will cause severe irritation of the upper respiratory tract, resulting in coughing, burning of the throat, and a choking sensation. If inhaled deeply, edema of the lungs may occur.

SKIN:

Irritating and corrosive to skin and can cause severe burns if not promptly washed off. Repeated contact of the skin may lead to the development of dermatitis.

EYE CONTACT:

This product rapidly causes severe irritation of the eyes and eyelids. If the acid is not quickly removed by thorough irrigation with water, there may be prolonged or permanent visual impairment or total loss of sight. Hydrogen chloride gas escaping from the aqueous solution is immediately irritating to the eyes.

INGESTION:

This product causes severe burns of mucous membranes of the mouth, esophagus, and stomach if swallowed.

EFFECTS OF OVEREXPOSURE

ACUTE:

Strongly irritating and corrosive to the eyes, skin, mouth, and digestive system. Vapors are irritating to the respiratory tract; excessive exposure may cause more severe symptoms including pulmonary edema.

The local dermal effect may consist of multiple areas of superficial destruction of the skin or of primary irritant dermatitis. Similarly, inhalation of spray, mist, or vapor may result in varying degrees of irritation or damage to the respiratory tract tissues and an increased susceptibility to respiratory illness. Prolonged or repeated exposure to concentrations in excess of the TLV may cause discoloration and/or erosion of the teeth.

CHRONIC:

No known chronic health effects.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Any acute or chronic respiratory condition.

TOXICOLOGY DATA:

Hydrochloric Acid

Acute Oral LD50

(rabbit)

900 mg/kg

Acute Inhalation LC50

(rat, 1hr)

3124 ppm

Corrosivity

(rabbit)

0.01%-15%

Concentration

Non-Corrosive

>15% Concentration

Corrosive

Corrosivity

(rabbit)

OCCIDENTAL CHEMICAL
MSDS NUMBER: M7695
PRODUCT NAME: MURIATIC ACID 20 COMMERCIAL

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III. IMPORTANT COMPONENTS

CAS NUMBER / NAME
7732185 Water

EXPOSURE LIMITS
PEL=Not Established
TLV=Not Established

PERCENTAGE
VOL 78.30-82
WT 64-69

COMMON NAMES:

Listed On(List Legend Below):
19 23

7647010 Hydrochloric acid

EXPOSURE LIMITS
PEL=5 ppm; 7 mg/m3, Ceiling (15 min)
TLV=5 ppm; 7.5 mg/m3, Ceiling (15 min)

PERCENTAGE
VOL 18-21.70
WT 31-36

COMMON NAMES:
HYDROGEN CHLORIDE

Listed On(List Legend Below):
01 02 13 18 21

All components of this product that are required to be on the TSCA Inventory are listed on the inventory.

Not listed as carcinogen - IARC, NTP, OSHA

LIST LEGEND

1 SARA EXTR HAZ SUB, SECTION 302	2 SARA TOXIC CHEM, SECTION 313
13 PA ENVIRONMENTAL HAZ SUBSTANCE	18 NY HAZARDOUS SUBSTANCES
19 PA REQUIREMENT- 3% OR GREATER	21 NJ SPECIAL HEALTH HAZ SUB
23 NJ REQUIREMENT- 1% OR GREATER	

IV. FIRE AND EXPLOSION DATA

FLASH POINT: NA

AUTOIGNITION TEMPERATURE: NA

FLAMMABLE LIMITS IN AIR, % BY VOLUME- UPPER: Nonflammable
LOWER: Nonflammable

EXTINGUISHING MEDIA:

Hydrogen chloride is non-combustible. Carbon dioxide, dry chemical and foam may all be used in areas where hydrogen chloride is stored.

SPECIAL FIRE FIGHTING PROCEDURES:

Positive pressure, self-contained respiratory protection should be provided for fire fighters in buildings or confined areas where this product is stored.

UNUSUAL FIRE AND EXPLOSION HAZARD:

This product is nonflammable and nonexplosive under normal conditions of use. At high temperatures, this product can generate toxic and irritating gases. If storage containers are exposed to excessive heat, over-pressurization and rupture of the containers can result. The use of water on this product should be discouraged. Addition of water may cause violent reaction.

This product attacks most metals with evolution of explosive hydrogen gas.

OCCIDENTAL CHEMICAL
MSDS NUMBER: M7695
PRODUCT NAME: MURIATIC ACID 20 COMMERCIAL

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V. SPECIAL PROTECTION

VENTILATION REQUIREMENTS:

Work in well ventilated areas. Use good engineering controls. Use local exhaust ventilation where mist, spray, gas, vapors, or fumes may be generated.

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY:

Use a NIOSH/MSHA approved respirator following manufacturer's recommendation where gas, vapor, fumes, spray, or mist may be generated.

EYE:

Wear chemical safety goggles plus full face shield to protect against splashing when appropriate (ANSI Z87.1).

GLOVES:

Wear chemical resistant gloves such as natural rubber, neoprene, nitrile or PVC.

OTHER CLOTHING AND EQUIPMENT:

Impervious and chemical resistant clothing and rubber shoes or boots should be used where any possibility of skin contact exists. Emergency shower and eyewash facility should be in close proximity (ANSI Z358.1).

VI. PHYSICAL DATA

	20 °Be'	22°Be'
BOILING POINT @ 760 mm Hg:	176°F 80°C	140°F 60°C
FREEZING POINT:	-49.3°F -46°C	-29.2°F -34°C
SPECIFIC GRAVITY (H ₂ O=1):	1.16	1.18
DENSITY:	1.16 gm/cc, 9.67 lb/gal	1.18 gm/cc 9.83 lb/gal
VAPOR PRESSURE @ 20°C:		80mm
SOLUBILITY IN H ₂ O % BY WT:	Infinite	
VAPOR DENSITY (Air=1):	1.3 @20°C	
APPEARANCE AND ODOR:	Clear to slightly yellow liquid with a sharp irritating odor.	
pH:	0.2% solution has a pH of ~2.	

All data varies with concentration.

OCCIDENTAL CHEMICAL
MSDS NUMBER: M7895
PRODUCT NAME: MURIATIC ACID 20 COMMERCIAL

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02-01-93

VII. REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY:

Under normal conditions of use, this product is stable.
Releases hydrogen chloride gas when heated.

INCOMPATIBILITY:

Avoid contacting this product with alkalis, alkali metals or other active metals and certain of their compounds. Do not add water directly to the product. The product may be added to water with mixing and dilution. Mixing with strong oxidizers can yield chlorine gas.

HAZARDOUS DECOMPOSITION PRODUCTS:

At high temperatures, this product generates toxic and irritating gases. Reacts with metals with the evolution of hydrogen which when mixed in air may result in fire or explosion if ignited. Chlorine gas may be released by mixing with strong oxidizers.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION:

Material is not known to polymerize.

VIII. HANDLING AND STORAGE

HANDLING AND STORAGE PRECAUTIONS:

When handling, wear chemical safety goggles and face shield, gloves and protective clothing.

Avoid breathing vapor, use with adequate ventilation - if exposure is likely, wear appropriate respiratory protection.

Wash thoroughly after handling.

Keep heat, sparks, open flames, pilot lights, and lighted cigarettes away from area of use as toxic, corrosive, and explosive gases may be formed.

Keep container tightly closed when not in use.

Store in cool, ventilated area away from flammable substances and oxidizing materials, particularly nitric acid or chlorates.

Open container carefully to avoid spurring.

DO NOT ADD WATER DIRECTLY TO PRODUCT, and do not mix with alkalis such as sodium hydroxide (caustic soda) or alkali metals, to avoid possible violent reaction. The product may be added to water with mixing and dilution.

Do not store in unlined containers. Leaking containers should be removed to outdoors or to an isolated and well ventilated area and contents transferred to a suitable container or disposed in a safe manner.

Dike and vent storage tanks.

OCCIDENTAL CHEMICAL
MSDS NUMBER: M7695
PRODUCT NAME: MURIATIC ACID 20 COMMERCIAL

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IX. ENVIRONMENTAL PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Proceed with caution and restrict access to area. Keep unprotected personnel up wind of spill area. Get protective clothing and equipment. Dike and contain spill and prevent from entering sewers and waterways. Contain spill and pump into marked containers for reclamation or disposal. For small spills or residue after pumping, neutralize with soda ash or dilute caustic soda solution or absorb with compatible substances such as sand or earth. Clean up material should be removed and placed in approved containers. Spills or releases should be reported, if required, to the appropriate local, state, and federal agencies.

WASTE DISPOSAL METHOD:

The materials resulting from clean-up operations may be hazardous wastes and, therefore, subject to specific regulations. Package, store, transport, and dispose of all clean-up materials and any contaminated equipment in accordance with all applicable federal, state, and local health and environmental regulations. Shipments of waste materials may be subject to manifesting requirements per applicable regulations. Appropriate disposal will depend on the nature of each waste material and should be performed by competent and properly permitted contractors. Ensure that all responsible federal, state, and local agencies receive proper notification of spill and disposal methods.

X. ADDITIONAL INFORMATION

Sec 311 of the Clean Water Act lists Muriatic Acid as a hazardous substance which, if discharged into or upon water, may require immediate response to mitigate danger to public health. Spills of Muriatic Acid of 5000 or more pounds must be reported to the National Response Center, 1-800-424-8802.

Contained on a composite list as required under Sec 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act (Superfund) which includes substances designated pursuant to Sec. 3001 of the Solid Waste Disposal Act (RCRA), Sec. 307 of the Clean Water Act, Sec 112 of the Clean Air Act, Sec 7 of TSCA and Sec 102 of CERCLA.

Done 6/1/00

2000 1910 1200 requires that information be

the Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) which includes substances designated pursuant to Sec. 300.1 of the Solid Waste Disposal Act (RCRA), Sec. 307 of the Clean Water Act, Sec 112 of the Clean Air Act, Sec 7 of TSCA and Sec 102 of CERCLA.

OSHA Standard 29CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, material safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Material Safety Data Sheet available to your employees.

To aid our customers in complying with regulatory requirements, SARA Title III hazard categories for this product are indicated in Section I. If the word "YES" appears next to any category, this product may be reportable by you under the requirements of 40 CFR Part 370. Please consult those regulations for details.

This product contains a toxic chemical or chemicals subject to the reporting requirements of SECTION 313 of TITLE III of the SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 and 40 CFR PART 372. (See Section III, List Legend 02)

OCCIDENTAL CHEMICAL
MSDS NUMBER: M7693
PRODUCT NAME: MURIATIC ACID 20 COMMERCIAL

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XI. PREPARATION INFORMATION

For additional Non-Emergency health, safety, or environmental information telephone (716) 286-3081, or write to:
Occidental Chemical Corporation
Product Stewardship Department
Suite 400
360 Rainbow Boulevard South
Niagara Falls, NY 14302

For Emergencies: 24 HOUR EMERGENCY PHONE: 1-800-733-3665

This MSDS replaces MSDS Number M7693 dated 06/21/89.

OCCIDENTAL CHEMICAL
MSDS NUMBER: M7895
PRODUCT NAME: MURIATIC ACID 20 COMMERCIAL

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02-01-93

WARNING LABEL INFORMATION

SIGNAL WORD: DANGER

STATEMENT OF HAZARDS:

CORROSIVE
CAUSES SEVERE BURNS TO EYES, SKIN, AND DIGESTIVE TRACT
SEVERELY IRRITATING TO RESPIRATORY TRACT - EXCESSIVE EXPOSURE MAY
CAUSE LUNG DAMAGE.
MAY CAUSE DISCOLORATION AND EROSION OF TEETH

PRECAUTIONARY STATEMENTS:

Keep container closed except when transferring material.
Do not breathe vapor.
Insure adequate ventilation or use an approved respirator.
Do not get in eyes, on skin, on clothing.
Use goggles, face shield, and rubber shoes. Wear protective
clothing and gloves made of vinyl, neoprene, or rubber.
Wash thoroughly after handling.
Material in contact with metals may liberate toxic and flammable
gases.
In presence of moisture, material in contact with metals may
release flammable hydrogen gas.
Do not allow entry to sewers or waterways.

FIRST AID:

FOR EYES:

OBJECT IS TO FLUSH MATERIAL OUT IMMEDIATELY THEN SEEK MEDICAL
ATTENTION. IMMEDIATELY flush eyes with large amounts of water
for at least 15 minutes holding lids apart to ensure flushing of
the entire eye surface. Washing eyes within seconds is essential
to achieve maximum effectiveness. SEEK MEDICAL ATTENTION
IMMEDIATELY.

FOR SKIN:

IMMEDIATELY wash contaminated areas with plenty of soap and
water for at least 15 minutes. A soothing ointment may be
applied to irritated skin after thorough cleansing. Remove
contaminated clothing and footwear and wash clothing before
reuse. Discard footwear which cannot be decontaminated. SEEK
MEDICAL ATTENTION IMMEDIATELY.

IF INHALED:

Remove to fresh air. If breathing is difficult, trained person
administer oxygen. If respiration stops, give mouth-to-mouth
resuscitation. GET MEDICAL ATTENTION.

IF SWALLOWED:

NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. If
swallowed, DO NOT INDUCE VOMITING. Give large quantities of
water. If available, give several glasses of milk. Keep airway
clear. SEEK MEDICAL ATTENTION IMMEDIATELY.

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OCCIDENTAL CHEMICAL
MSDS NUMBER: M7695
PRODUCT NAME: MURIATIC ACID 20 COMMERCIAL

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WARNING LABEL INFORMATION (Continued)

SPILL OR LEAK:

Get protective equipment. Contain spill and pump into marked container for reclamation or disposal. Avoid discharges to sewers and streams. Spills of 5000 pounds or more must be reported to the National Response Center. 1-800-424-8802.

FIRE:

Material will not burn. Use extinguishing medium as appropriate for surrounding fire. Use self-contained breathing apparatus and full protective equipment fire will liberate toxic gases. ADDITION OF WATER MAY CAUSE VIOLENT REACTION.

HANDLING AND STORAGE:

Store in a cool, dry, well-ventilated area away from metals and strong alkalis, flammable substances and oxidizing materials. Dike and vent storage tanks. Do not add water directly to product, do not mix with alkalis or alkali metals. Do not store in unlined containers.

DISPOSAL:

Submit to an approved chemical disposal service for disposal in accordance with government regulations.

INFORMATION REQUIRED BY FEDERAL, STATE OR LOCAL REGULATIONS:

This product contains:

CAS#	NAME
7732185	Water
7647010	Hydrochloric acid

HMIS RATING SYSTEM: HEALTH 3 FLAMMABILITY 0

REACTIVITY 2

FOR INDUSTRIAL USE ONLY

LABEL 023M7695

For additional information see Material Safety Data Sheet (MSDS) for this product.

OxyChem®Responsible Care®
A Public Commitment**MATERIAL SAFETY DATA SHEET**

MSDS NUMBER : M4806

DATA SHEET NO. 4

MSDS DATE : 04-12-93

PRODUCT NAME : 50% CAUSTIC SODA-DIAPHRAGM

24 HOUR EMERGENCY PHONE: 1-800-733-3665 OR 716-278-7021

I. PRODUCT IDENTIFICATION**HMIS HAZARD RATINGS**

HEALTH HAZARD 3

FIRE HAZARD 0

REACTIVITY 2

Based on the National Paint & Coatings Association HMIS rating system

SARA/TITLE III HAZARD CATEGORIES (See Section X)Immediate (ACUTE) Health: YES
Delayed (Chronic) Health: NO
Fire Hazard: NOReactive Hazard: YES
Sudden Release of Pressure: NOMANUFACTURER'S: Occidental Chemical Corporation
NAME AND ADDRESS: Customer Service, Occidental Tower,
P O Box 809050, Dallas, Texas 75380 Telephone (1-800-752-5151)

CHEMICAL NAME: Sodium Hydroxide CAS NUMBER: 1310-73-2

SYNONYMS/COMMON NAMES: Sodium Hydroxide; NaOH

CHEMICAL FORMULA: NaOH

DOT PROPER SHIPPING NAME: Sodium Hydroxide, Liquid

DOT HAZARD CLASS: Corrosive Material

DOT I.D. NUMBER: UN1824

DOT HAZARDOUS SUBSTANCE: RQ 1000 lbs.

II. HEALTH HAZARD INFORMATION**EMERGENCY AND FIRST AID PROCEDURES****EYES:**

OBJECT IS TO FLUSH MATERIAL OUT IMMEDIATELY THEN SEEK MEDICAL ATTENTION. IMMEDIATELY flush eyes with large amounts of water for at least 15 minutes, holding lids apart to ensure flushing of entire surface. Washing eyes within several seconds is essential to achieve maximum effectiveness. SEEK MEDICAL ATTENTION IMMEDIATELY.

CAS = Chemical Abstract Service Number
SEL = Safe Permissible Exposure Limit
TLV = ACGIH Threshold Limit Value, Current
NIOSH = National Institute for Occupational Safety and Health
MSDS = Material Safety Data Sheet
GHS = Globally Harmonized System
H = Health hazard
P = Physical hazard
E = Environment
S = Safety
NFPA = National Fire Protection Association
Hazardous = Material that is highly flammable, highly reactive, or highly toxic
Corrosive = Material that causes severe damage to metals or humans
Irritant = Material that causes moderate damage to humans
Harmful = Material that causes minor damage to humans
Non-hazardous = Material that is not considered hazardous
Other = Other information that may be relevant to the safety of the material
The information presented herein is for informational purposes only and is not intended to be used as a substitute for professional advice. The user should consult the appropriate safety data sheet for the material being used. The user should also consult the appropriate safety data sheet for the material being used. The user should also consult the appropriate safety data sheet for the material being used.

OCCIDENTAL CHEMICAL
MSDS NUMBER: M4808
PRODUCT NAME: 50% CAUSTIC SODA-DIAPHRAGM

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04-12-93

II. HEALTH HAZARD INFORMATION (Continued)

SKIN:

IMMEDIATELY wash with plenty of water for at least 15 minutes. Remove contaminated clothing and footwear. Wash clothing before reuse and discard footwear which cannot be decontaminated. SEEK MEDICAL ATTENTION IMMEDIATELY.

INHALATION:

Remove to fresh air; if breathing is difficult have trained person administer oxygen. If respiration stops, give mouth-to-mouth resuscitation. GET MEDICAL ATTENTION.

INGESTION:

NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. If available, give several glasses of milk. If vomiting occurs spontaneously, keep airway clear. SEEK MEDICAL ATTENTION IMMEDIATELY.

ROUTES OF EXPOSURE

INHALATION:

Breathing dust, mist or spray may cause damage to the upper respiratory tract and lung tissue proper which could produce chemical pneumonia, depending upon severity of exposure.

SKIN:

Contact produces severe burns and destroys tissues. Irritation may be delayed.

EYE CONTACT:

Causes severe burns that result in damage to the eyes and possibly blindness.

INGESTION:

Causes severe burns to mucous membranes of the mouth, throat, esophagus, and stomach.

EFFECTS OF OVEREXPOSURE

ACUTE:

Corrosive to all body tissues by all routes of exposure. The effect of local dermal exposure may consist of multiple areas of superficial destruction of the skin or of primary irritant dermatitis. Similarly, inhalation of dust, spray, or mist may result in varying degrees of irritation or damage to the respiratory tract tissues and an increased susceptibility to respiratory illness.

CHRONIC:

No known chronic effects.

TOXICOLOGY DATA:

Caustic soda is a corrosive material.
Acute Dermal LD50 (rabbit) 1350 mg/kg

Human Dermal Exposure

Regardless of concentrations, the severity of damage and extent of its irreversibility increases with length of contact time. Prolonged contact with sodium hydroxide solutions of $\geq 1\%$ can cause a high degree of tissue destruction. The latent period following skin contact during which no sensation of irritation occurs, varies from several hours for 0.4 - 4% solution to 3 minutes with concentrations of 25% or greater.

OCCIDENTAL CHEMICAL
MSDS NUMBER: M4806
PRODUCT NAME: 50% CAUSTIC SODA-DIAPHRAGM

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04-12-93

III. IMPORTANT COMPONENTS

CAS NUMBER / NAME

7732185 Water

EXPOSURE LIMITS

PEL=Not Established
TLV=Not Established

PERCENTAGE

VOL ND
WT 48.50-91

COMMON NAMES:

Listed On(List Legend Below):

19 23

7732185 Sodium hydroxide (NaOH)

EXPOSURE LIMITS

PEL=2 mg/m3, Ceiling
TLV=2 mg/m3, Ceiling

PERCENTAGE

VOL ND
WT 9-51.50

COMMON NAMES:

CAUSTIC SODA

Listed On(List Legend Below):

13 18 21

7647145 Sodium chloride (NaCl)

EXPOSURE LIMITS

PEL=None established
TLV=None established

PERCENTAGE

VOL ND
WT 0-1.30

COMMON NAMES:

SALT

Listed On(List Legend Below):

23

7775099 Chloric acid, sodium salt

EXPOSURE LIMITS

PEL=Not Established
TLV=Not Established

PERCENTAGE

VOL ND
WT 0-0.30

COMMON NAMES:

SODIUM CHLORATE

Listed On(List Legend Below):

12 21

All components of this product that are required to be on the TSCA inventory are listed on the inventory.

Not listed as carcinogen - IARC, NTP, OSHA

LIST LEGEND

12 PA HAZARDOUS SUBSTANCE
18 NY HAZARDOUS SUBSTANCES
21 NJ SPECIAL HEALTH HAZ SUB

13 PA ENVIRONMENTAL HAZ SUBSTANCE
19 PA REQUIREMENT- 3% OR GREATER
23 NJ REQUIREMENT- 1% OR GREATER

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OCCIDENTAL CHEMICAL
MSDS NUMBER: M4806
PRODUCT NAME: 50% CAUSTIC SODA-DIAPHRAGM

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04-12-93

IV. FIRE AND EXPLOSION DATA

FLASH POINT: NA AUTOIGNITION TEMPERATURE: Nonflammable

FLAMMABLE LIMITS IN AIR, % BY VOLUME- UPPER: NA
LOWER: NA

EXTINGUISHING MEDIA:

This product is not combustible. Foam, carbon dioxide or dry chemical may be used where this product is stored.

SPECIAL FIRE FIGHTING PROCEDURES:

Wear full protective clothing. Avoid direct contact of this product with water as this can cause a violent exothermic reaction.

UNUSUAL FIRE AND EXPLOSION HAZARD:

Direct contact with water can cause violent exothermic reaction.

V. SPECIAL PROTECTION

VENTILATION REQUIREMENTS:

Special ventilation is not required under normal use. Use local exhaust ventilation where dust, mist, or spray may be generated. NOTE: Where carbon monoxide or other reaction products may be generated, special ventilation may be required.

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY:

Respiratory protection is not required under normal use. Use NIOSH/MSHA approved respirators where dust, mist, or spray may be generated.

EYE:

Wear chemical safety goggles plus full face shield to protect against splashing (ANSI Z87.1).

GLOVES:

Wear chemical resistant gloves such as natural and butyl rubber. Gloves may be decontaminated by washing with mild soap and water.

OTHER CLOTHING AND EQUIPMENT:

Impervious protective clothing and chemically resistant safety shoes should be worn to minimize contact. Wash contaminated clothing with soap and water and dry before reuse. Emergency shower and eyewash facility should be in close proximity. (ANSI Z358.1).

OCCIDENTAL CHEMICAL
MSDS NUMBER: M4806
PRODUCT NAME: 50% CAUSTIC SODA-DIAPHRAGM

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VI. PHYSICAL DATA

PHYSICAL STATE: LIQUID	Concentration, Weight %				
	10	20	30	40	50
BOILING POINT, @ 760 mm Hg, °C:	110	113	119	129	144
FREEZING POINT, °C:	-10	-32	0	15	12
VAPOR PRESSURE, mm Hg @ 60°C:	135	110	76	46	25
SPECIFIC GRAVITY @15.6°C/15.6°C:	1.11	1.22	1.33	1.43	1.53
DENSITY, lbs/gallon @ 15.6°C/15.6°C:	9.27	10.20	11.11	11.97	12.76
SOLUBILITY IN H ₂ O, % by wt:	completely soluble				
VAPOR DENSITY (Air = 1):	Not Applicable				
APPEARANCE AND ODOR:	Clear liquid with no distinct odor				
ODOR THRESHOLD (PPM):	Not Available				
EVAPORATION RATE:	Not Known				
COEFFICIENT WATER/OIL DISTRIBUTION:	Not Available				
pH:	7.5% solution has pH 14.0				

VII. REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY:

Under normal conditions, this product is stable.

INCOMPATIBILITY:

See Section VIII. Avoid contact with water. This product may be added slowly to water or acids with dilution and constant stirring to avoid a violent exothermic reaction. When handling this product, avoid contact with aluminum, tin, zinc, and alloys containing these metals. Do not mix with strong acids without dilution and agitation to prevent violent or explosive reaction. Avoid contact with leather, wool, acids, organic halogen compounds and organic nitro compounds.

HAZARDOUS DECOMPOSITION PRODUCTS:

None known.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION:

Material is not known to polymerize.

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OCCIDENTAL CHEMICAL
MSDS NUMBER: M4806
PRODUCT NAME: 50% CAUSTIC SODA-DIAPHRAGM

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VIII. HANDLING AND STORAGE

HANDLING AND STORAGE PRECAUTIONS:

Do not get into eyes, on skin, on clothing.

Avoid breathing dust, mists, or spray.

Do not take internally.

Use with adequate ventilation and wear respiratory protection

when exposure to dust, mist or spray is possible.

When handling, wear chemical splash goggles, face shield, rubber gloves and protective clothing.

Wash thoroughly after handling or contact - exposure can cause burns which are not immediately painful or visible.

Keep container closed.

Product can react violently with water, acids, and other substances - read Special Mixing and Handling Instructions below carefully before using.

Product is corrosive to tin, aluminum, zinc and alloys containing these metals, and will react violently with these metals in powder form.

Hazardous carbon monoxide gas can form upon contact with food and beverage products in enclosed spaces and can cause death. Follow appropriate tank entry procedures (ANSI Z117.1).

SPECIAL MIXING AND HANDLING INSTRUCTIONS

Product can react violently with water. Considerable heat is generated when product is mixed with water. Therefore, when making solutions always carefully follow these steps:

ALWAYS wear ALL protective clothing described above. NEVER add water to product. ALWAYS add product - with constant stirring - slowly to surface of lukewarm (80-100°F) water, to assure product is being completely dissolved as it is added.

If product is added too rapidly, or without stirring, and becomes concentrated at bottom of mixing vessel, excessive heat may be generated, resulting in DANGEROUS boiling and spattering, and a possible IMMEDIATE AND VIOLENT ERUPTION of highly caustic solution.

NOTE: Never add more product than can be absorbed by solution while maintaining temperature below 200°F (9 sea level) to prevent boiling and spattering.

Product can react EXPLOSIVELY with acids, aldehydes, and many other organic chemicals - when mixing product with solutions containing such chemicals, follow all of above mixing instructions, and add product very gradually, while stirring constantly.

ALWAYS empty and clean containers of all residues before adding product, to avoid possible EXPLOSIVE reaction between product and unknown residue.

Returnable containers should be shipped in accordance with supplier's recommendations. Return shipments should comply with all federal, state, and DOT regulations. All residual caustic soda should be removed from containers prior to disposal.

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OCCIDENTAL CHEMICAL
MSDS NUMBER: M4806
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IX. ENVIRONMENTAL PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Leaks should be stopped. Spills should be contained and cleaned up immediately. Spills should be removed by using a vacuum truck. Neutralize remaining traces of material with any dilute inorganic acid such as hydrochloric, sulfuric, nitric, phosphoric, and acetic acid. The spill area should then be flushed with water followed by liberal covering of sodium bicarbonate. All clean-up material should be removed and placed in approved containers, labeled and stored in a safe place to await proper treatment or disposal. Spills on areas other than pavement, e.g., dirt or sand, may be handled by removing the affected soils and placing in approved containers. Persons performing clean-up work should wear adequate personal protective equipment and clothing. Spills or releases should be reported, if required, to the appropriate local, state and federal regulatory agencies.

CAUTION: Caustic soda may react violently with acids and water.

WASTE DISPOSAL METHOD:

The materials resulting from clean-up operations may be hazardous wastes and, therefore, subject to specific regulations. Package, store, transport, and dispose of all clean-up materials and any contaminated equipment in accordance with all applicable federal, state, and local health and environmental regulations. Shipments of waste materials may be subject to manifesting requirements per applicable regulations. Appropriate disposal will depend on the nature of each waste material and should be performed by competent and properly permitted contractors. Ensure that all responsible federal, state, and local agencies receive proper notification of spill and disposal methods.

X. ADDITIONAL INFORMATION

OSHA Standard 29CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, material safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Material Safety Data Sheet available to your employees.

To aid our customers in complying with regulatory requirements, SARA Title III hazard categories for this product are indicated in Section I. If the word "YES" appears next to any category, this product may be reportable by you under the requirements of 40 CFR Part 370. Please consult those regulations for details.

XI. PREPARATION INFORMATION

For additional Non-Emergency health, safety, or environmental information telephone (716) 286-3081, or write to:

Occidental Chemical Corporation
Product Stewardship Department
Suite 400
360 Rainbow Boulevard South
Niagara Falls, NY 14302

For Emergencies: 24 HOUR EMERGENCY PHONE: 1-800-733-3665

This MSDS replaces MSDS Number M4806 dated 01/10/93

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OCCIDENTAL CHEMICAL
MSDS NUMBER: M4806
PRODUCT NAME: 50% CAUSTIC SODA-DIAPHRAGM

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WARNING LABEL INFORMATION

SIGNAL WORD: DANGER

STATEMENT OF HAZARDS:

CAUSES SEVERE BURNS TO SKIN, EYES AND MUCOUS MEMBRANES.
CONTACT WITH EYES CAN CAUSE PERMANENT EYE DAMAGE.
INHALATION OF DUST, MIST, OR SPRAY CAN CAUSE SEVERE LUNG DAMAGE.
CAN REACT VIOLENTLY WITH WATER, ACIDS, AND OTHER SUBSTANCES.

PRECAUTIONARY STATEMENTS:

Do not get into eyes, on skin, on clothing.
Avoid breathing dust, mist, or spray.
Do not take internally.
Use with adequate ventilation and employ respiratory protection when exposure to dust, mist, or spray is possible.
When handling, wear chemical splash goggles, face shield, rubber gloves and protective clothing.
Wash thoroughly after handling or contact - exposure can cause burns which are not immediately painful or visible.
Keep container closed.
Product can react violently with water, acids, and other substances - read Handling and Storage instructions carefully before using.
Product is corrosive to tin, aluminum, zinc, and alloys containing these metals, and will react violently with these metals in powder form.
Hazardous carbon monoxide gas can form upon contact with food and beverage products in enclosed spaces and can cause death. Follow appropriate tank entry procedures.

FIRST AID:

FOR EYES:

OBJECT IS TO FLUSH MATERIAL OUT IMMEDIATELY THEN SEEK MEDICAL ATTENTION. IMMEDIATELY flush eyes with large amounts of water for at least 15 minutes forcibly holding lids apart to ensure flushing of entire surface. Washing eyes within several seconds is essential to achieve maximum effectiveness. SEEK MEDICAL ATTENTION IMMEDIATELY.

FOR SKIN:

IMMEDIATELY wash with plenty of water for at least 15 minutes. Remove contaminated clothing and footwear. Wash clothing before reuse and discard footwear which cannot be decontaminated. SEEK MEDICAL ATTENTION IMMEDIATELY.

IF INHALED:

Remove to fresh air. If breathing is difficult, have trained person administer oxygen. If respiration stops, give mouth-to-mouth resuscitation. GET MEDICAL ATTENTION.

IF SWALLOWED:

NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. If available, give several glasses of milk. If vomiting occurs spontaneously, keep airway clear. SEEK MEDICAL ATTENTION IMMEDIATELY.

IN CASE OF:

SPILL OR LEAK:

Leaks should be stopped. Spills, after containment, should be shoveled up or removed by vacuum truck (if liquid) to chemical waste area. Neutralize residue with dilute acid, flush spill area with water followed by liberal covering of sodium bicarbonate. Dispose of wash water and spill by-products according to federal, state, and local regulations.

OCCIDENTAL CHEMICAL
MSDS NUMBER: M4806
PRODUCT NAME: 50% CAUSTIC SODA-DIAPHRAGM

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WARNING LABEL INFORMATION (Continued)

HANDLING AND STORAGE:

Considerable heat is generated when product is mixed with water. Therefore, when making solutions always carefully follow these steps:

ALWAYS wear ALL prescribed protective clothing. NEVER add water to product. ALWAYS add product - with constant stirring - slowly to surface of lukewarm (80-100°F) water, to assure product is being completely dissolved as it is added.

If product is added too rapidly, or without stirring, and becomes concentrated at bottom of mixing vessel, excessive heat may be generated, resulting in DANGEROUS boiling and spattering and a possible IMMEDIATE AND VIOLENT ERUPTION of highly caustic solution.

NOTE: Never add more product than can be absorbed by solution while maintaining temperature below 200°F (@ sea level) to prevent boiling and spattering.

Product can react EXPLOSIVELY with acids, aldehydes, and many other organic chemicals - when mixing product with solutions containing such chemicals, follow all of above mixing instructions, and add product very gradually, while stirring constantly.

ALWAYS empty and clean containers of all residues before adding product, to avoid possible EXPLOSIVE reaction between product and unknown residue.

Returnable containers should be shipped in accordance with supplier's recommendations. Return shipments should comply with all federal, state, and DOT regulations. All residual caustic soda should be removed from containers prior to disposal.

DISPOSAL:

The materials resulting from clean-up operations may be hazardous wastes and, therefore, subject to specific regulations. Package, store, transport, and dispose of all clean-up materials and any contaminated equipment in accordance with all applicable federal, state, and local health environmental regulations. Shipments of waste materials may be subject to manifesting requirements per applicable regulations. Appropriate disposal will depend on the nature of each waste material and should be performed by competent and properly permitted contractors. Ensure that all responsible federal, state, and local agencies receive proper notification of disposal.

INFORMATION REQUIRED BY FEDERAL, STATE OR LOCAL REGULATIONS:

This product contains:

CAS#	NAME
7732185	Water
1310732	Sodium hydroxide (Na(OH))
7647145	Sodium chloride (NaCl)
7775099	Chloric acid, sodium salt

HMIS RATING SYSTEM: HEALTH 3

FLAMMABILITY 0

REACTIVITY 2

FOR INDUSTRIAL USE ONLY

LABEL

043M4806

TOTAL P.19

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DATA SHEET NO. 5

MATERIAL SAFETY DATA SHEET		ASHLAND CHEMICAL, INC. <small>Subsidiary of Ashland Oil, Inc.</small> P.O. BOX 2219 COLUMBUS, OHIO 43216 (614) 889-3333	24-HOUR Emergency Telephone 1(800) 274-5263 1(800) ASHLAND
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002624

HYDROGEN PEROXIDE 35% TECH

Page:

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

Product Name: HYDROGEN PEROXIDE 35% TECH
 CAS NUMBER: 7722-84-1

CASCADE COLUMBIA DISTRIBUTION
 P.O. BOX 9247 QUEEN ANNE STN
 SEATTLE WA 98109

05 50 108 1581040-

Data Sheet No: 0004061-005.000
 Prepared: 09/25/90
 Supersedes: 03/04/86

PRODUCT: 3473016
 INVOICE: 411160
 INVOICE DATE: 03/15/93
 TO: CASCADE COLUMBIA DISTRIBUTION
 3231 17TH AVENUE WEST
 SEATTLE WA 98119

ATTN: PLANT MGR./SAFETY DIR.

SECTION I - PRODUCT IDENTIFICATION

General or Generic ID: PEROXIDE

DOT Hazard Classification: OXIDIZER (173.151)

SECTION II - COMPONENTS

IF PRESENT, IARC, NTP AND OSHA CARCINOGENS AND CHEMICALS SUBJECT TO THE REPORT-
 ING REQUIREMENTS OF SARA TITLE III SECTION 303 ARE IDENTIFIED IN THIS SECTION.
 SEE DEFINITION PAGE FOR CLARIFICATION

INGREDIENT	% (by WT)	PEL	TLV	Note
HYDROGEN PEROXIDE CAS #: 7722-84-1	35	1 PPM	1 PPM	
WATER CAS #: 7732-18-5	65			

SECTION III - PHYSICAL DATA

Boiling Point	for PRODUCT	(226.00 Deg F 107.77 Deg C) e 760.00 mm Hg
Vapor Pressure	for PRODUCT	(23.00 mm Hg e 86.00 Deg F 30.00 Deg C)
Specific Vapor Density	AIR = 1	.9
Specific Gravity		(1.133 e 68.00 Deg F 20.00 Deg C)
Percent Volatiles		100.00%
Evaporation Rate	(N-BUTYL ACETATE = 1)	< 1.00

SECTION IV - FIRE AND EXPLOSION INFORMATION

FLASH POINT NOT APPLICABLE

EXPLOSIVE LIMIT NOT APPLICABLE

EXTINGUISHING MEDIA: WATER FOG

HAZARDOUS DECOMPOSITION PRODUCTS: NOT APPLICABLE

FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE AND FULL BODY PROTECTION WHEN FIGHTING FIRES.

SPECIAL FIRE & EXPLOSION HAZARDS: DECOMPOSITION CAN RELEASE OXYGEN WHICH SUPPORTS COMBUSTION AND REDUCES THE EFFECTIVENESS OF SUFFOCATION TYPE FIRE EXTINGUISHERS.

THIS MATERIAL IS A POWERFUL OXIDIZER. CONTACT WITH COMBUSTIBLE MATERIALS CAN RESULT IN FIRE OR EXPLOSION.

NFPA CODES: HEALTH- 2 FLAMMABILITY- 0 REACTIVITY- 1

OXIDIZING MATERIAL

SECTION V - HEALTH HAZARD DATA

THIS MATERIAL IS A POWERFUL OXIDIZER. CONTACT WITH COMBUSTIBLE MATERIALS CAN RESULT IN FIRE OR EXPLOSION.
NFPA CODES: HEALTH- 2 FLAMMABILITY- 0 REACTIVITY- 1
OXIDIZING MATERIAL

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL 1 PPM

THRESHOLD LIMIT VALUE 1 PPM

EFFECTS OF ACUTE OVEREXPOSURE:

EYES - CAN CAUSE SEVERE DAMAGE, EVEN BLINDNESS; EFFECTS MAY NOT BE IMMEDIATE, MAY BE DELAYED AS MUCH AS A WEEK.
SKIN - CAN CAUSE TEMPORARY BLEACHING, REDNESS, AND BLISTERING.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION.
SWALLOWING - RESULTS IN EVOLUTION OF OXYGEN AND MAY CAUSE BLEEDING AND INJURY TO THE STOMACH AND ESOPHAGUS AS A RESULT OF SUDDEN DISTENTION.

FIRST AID:

IF ON SKIN: IMMEDIATELY FLUSH EXPOSED AREA WITH WATER FOR AT LEAST 15 MINUTES, GET MEDICAL ATTENTION. REMOVE

CONTINUED ON PAGE: 2

MATERIAL SAFETY DATA SHEET



ASHLAND CHEMICAL, INC.

Subsidiary Of Ashland Oil, Inc.

P.O. BOX 2219

COLUMBUS, OHIO 43216

(614) 889-3333

24-HOUR
Emergency
Telephone

1(800) 274-5263

1(800) ASHLAND

002624

HYDROGEN PEROXIDE 35% TECH

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SECTION V-HEALTH HAZARD DATA (Continued)

CONTAMINATED CLOTHING. LAUNDRY CONTAMINATED CLOTHING BEFORE RE-USE.

IN EYES: IMMEDIATELY FLUSH WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES, LIFTING UPPER AND LOWER LIDS OCCASIONALLY. GET IMMEDIATE MEDICAL ATTENTION.

IF PHYSICIAN IS NOT IMMEDIATELY AVAILABLE, CONTINUE FLUSHING WITH WATER.

DO NOT USE CHEMICAL ANTIDOTE.

IF SWALLOWED: DO NOT INDUCE VOMITING. IMMEDIATELY DRINK TWO GLASSES OF WATER. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. CALL PHYSICIAN OR TRANSPORT TO AN EMERGENCY FACILITY.

IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF TIGHTNESS OR CONGESTION IN CHEST DEVELOPS, GET MEDICAL ATTENTION.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION, SKIN CONTACT

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR

STABILITY: STABLE - AVOID HEAT, OPEN FLAME, AND PROLONGED STORAGE AT ELEVATED TEMPERATURES.

INCOMPATIBILITY: AVOID CONTACT WITH: FERROUS METALS, COPPER, ORGANIC MATERIALS, COMBUSTIBLE MATERIALS, REDUCING AGENTS, CYANIDES

SECTION VII-SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL: IMMEDIATELY SOAK UP SPILL WITH PERLITE OR VERMICULITE. SWEEP UP WITH NON-SPARKING EQUIPMENT.

LARGE SPILL: PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE, DIKE AREA OF SPILL TO PREVENT SPREADING, PUMP LIQUID TO SALVAGE TANK. REMAINING LIQUID MAY BE TAKEN UP ON SAND, CLAY, EARTH, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND SHOVELED INTO CONTAINERS.

NOTIFY THE PROPER AUTHORITIES AS REQUIRED THAT A SPILL HAS OCCURRED.

WASTE DISPOSAL METHOD:

SMALL SPILL: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

LARGE SPILL: DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF WORKPLACE EXPOSURE LIMIT(S) OF PRODUCT OR ANY COMPONENT IS EXCEEDED (SEE SECTION II), A NIOSH/MSHA APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS (NEGATIVE PRESSURE TYPE) UNDER SPECIFIED CONDITIONS (SEE YOUR SAFETY EQUIPMENT SUPPLIER), ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.

VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).

PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS: NEOPRENE, POLYVINYL CHLORIDE, BUTYL RUBBER

OSHA REGULATIONS ALSO PERMIT OTHER RESPIRATORS (NEGATIVE PRESSURE TYPE) UNDER SPECIFIED CONDITIONS (SEE YOUR SAFETY EQUIPMENT SUPPLIER). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.

VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).

PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS: NEOPRENE, POLYVINYL CHLORIDE, BUTYL RUBBER

EYE PROTECTION: CHEMICAL SPLASH GOGGLES AND FACE SHIELD (8" MIN.) IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. (CONSULT YOUR SAFETY EQUIPMENT SUPPLIER)

SKIN PROTECTIVE EQUIPMENT: TO PREVENT SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED, SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOUR, LIQUID, AND/OR SOLID). ALL HAZARD PRECAUTIONS GIVEN IN THIS DATASHEET MUST BE OBSERVED.

THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

**MATERIAL SAFETY
DATA SHEET**

ASHLAND CHEMICAL, INC.

Subsidiary of Ashland Oil, Inc.
P.O. BOX 2219
COLUMBUS, OHIO 43216
(614) 889-3333

24-HOUR

Emergency
Telephone

1 (800) 274-5263 or
1 (800) ASHLAND

DEFINITIONS

This definition page is intended for use with Material Safety Data Sheets supplied by the Ashland Chemical Company. Recipients of these data sheets should consult the OSHA Safety and Health Standards (29 CFR 1910), particularly Subpart G - Occupational Health and Environmental Control, and subpart I - Personal Protective Equipment, for general guidance on control of potential Occupational Health and Safety Hazards.

SECTION I
PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: Chemical family or product description.

DOT HAZARD CLASSIFICATION: Product meets DOT criteria for hazards listed.

SECTION II
COMPONENTS

Components are listed in this section if they present a physical or health hazard and are present at or above 1% in the mixture. If a component is identified as a CARCINOGEN by NTP, IARC, or OSHA as of the date on the MSDS, it will be listed and footnoted in this section when present at or above 0.1% in the product. Negative conclusions concerning carcinogenicity are not reported. Additional health information may be found in Section V. Components subject to the reporting requirements of Section 313 of SARA Title III are identified in the footnotes in this section, along with typical percentages. Other components may be listed if deemed appropriate.

Exposure recommendations are for components. OSHA Permissible Exposure Limits (PELS) and American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) appear on the line with the component identification. Other recommendations appear as footnotes.

SECTION III
PHYSICAL DATA

BOILING POINT: Of product if known. The lowest value of the components is listed for mixtures.

VAPOR PRESSURE: Of product if known. The highest value of the components is listed for mixtures.

SPECIFIC VAPOR DENSITY: Compared to AIR = 1. If the Specific Vapor Density of a product is not known, the value is expressed as lighter or greater than air.

SPECIFIC GRAVITY: Compared to WATER = 1. If Specific Gravity of product is not known, the value is expressed as less than or greater than water.

pH: If applicable.

PERCENT VOLATILES: Percentage of material with initial boiling point below 425 degrees Fahrenheit and vapor pressure above 0.1mm Hg at 68 F.

EVAPORATION RATE: Indicated as faster or slower than ETHYL ETHER, unless otherwise stated.

SECTION IV
FIRE AND EXPLOSION DATA

FLASH POINT: Method identified.

EXPLOSION LIMITS: For product if known. The lowest value of the components is listed for mixtures.

HAZARDOUS DECOMPOSITION PRODUCTS: Known or expected hazardous products resulting from heating, burning or other reactions.

SECTION IV (cont)

EXTINGUISHING MEDIA: Following National Fire Protection Association criteria.

FIREFIGHTING PROCEDURES: Minimum equipment to protect firefighters from toxic products of vaporization, combustion or decomposition in fire situations. Other firefighting hazards may also be indicated.

SPECIAL FIRE AND EXPLOSION HAZARDS: States hazards not covered by other sections.

NFPA CODES: Hazard ratings assigned by the National Fire Protection Association.

SECTION V
HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LIMIT: For product.

THRESHOLD LIMIT VALUE: For product.

EFFECTS OF ACUTE OVEREXPOSURE: Potential local and systemic effects due to single or short term overexposure to the eyes and skin or through inhalation or ingestion.

EFFECTS OF CHRONIC OVEREXPOSURE: Potential local and systemic effects due to repeated or long term overexposure to the eyes and skin or through inhalation or ingestion.

FIRST AID: Procedures to be followed when dealing with accidental overexposure.

PRIMARY ROUTE OF ENTRY: Based on properties and expected use.

SECTION VI
REACTIVITY DATA

HAZARDOUS POLYMERIZATION: Conditions to avoid to prevent hazardous polymerization resulting in a large release of energy.

STABILITY: Conditions to avoid to prevent hazardous or violent decomposition.

INCOMPATIBILITY: Materials and conditions to avoid to prevent hazardous reactions.

SECTION VII
SPILL OR LEAK PROCEDURES

Reasonable precautions to be taken and methods of containment, clean-up and disposal. Consult federal, state and local regulations for accepted procedures and any reporting or notification requirements.

SECTION VIII
PROTECTIVE EQUIPMENT TO BE USED

Protective equipment which may be needed when handling the product.

SECTION IX
SPECIAL PRECAUTIONS OR OTHER COMMENTS

Covers any relevant points not previously mentioned.

ADDITIONAL COMMENTS

Containers should be either reconditioned by CERTIFIED firms or properly disposed of by APPROVED firms. Disposal of containers should be in accordance with applicable laws and regulations. EMPTY drums should not be given to: